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EXAMINER
PHAM, KHANH B

ART UNIT	PAPER NUMBER
2166	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		10/003,186	ENNIS ET AL.
		Examiner	Art Unit
		Khanh B. Pham	2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24,33-48 and 61-70* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24,33-48 and 61-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 17-24 and 33-48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 17-24 are directed to "an apparatus". However, all components of the claimed "apparatus" are, or could be implemented, using software routine. The claimed "apparatus" therefore isn't really an apparatus, it's software per se; lacking any hardware to make it an actual apparatus. The claims need to recite at least one hardware component which enables the functionality to be realized.

Claims 33-48 are directed to "a computer readable medium comprising instructions", where the specification does not provide antecedent basis for the term "computer readable medium". In the context of the claim, the "computer readable medium" could be interpreted as a set of instructions. The claimed subject matter are therefore directed to a set of instructions and rejected as not being tangibly embodied.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   **Claims 1-24,33-48 and 61-70** rejected under 35 U.S.C. 103(a) as being unpatentable over Bracho et al. (US 5,974,417 A), hereinafter "Bracho" and in view of Applicant admitted prior art (Specification pages 1-3), hereinafter "AAPA".

As per claims 1, 9, Bracho teaches a method for facilitating publish/subscribe communication within a network switch (see Fig. 1) comprising;

- "a communication coordinator within one of the plurality of line modules to receive publications made to one or more event names receiving a subscription request over the second communication network, said subscription request comprising an event expression that includes a namespace that can be correlated to a plurality of different event names" Col. 10 line 65 to Col. 11 line 25 and Col. 15 lines 40-62;

- "accessing within a control module connected to said plurality of line modules a set of information pertaining to a publisher, said information comprising a particular event name to which said publisher publishes" at Col. 5 lines 5-25, Col. 10 lines 1-34 and Fig. 5;

- "resolving said event expression within said control module to determine whether said particular event name constitutes a match for said event expression, thereby determining whether said subscription request is a request to receive one or

more publications made to said particular event name" at Col. 2 lines 24-31 and

Col. 5 lines 5-25

Bracho teaches the method implemented in a hub, which is similar to a switch, but does

not explicitly teaches the structure of the network switch as recited in the preamble.

However, AAPA teaches a typical network switch "has at least a switch and plurality of

line modules for communicating data from a trunk lines through the switch to other

remote trunk lines across respective line module across a first communication network,

and said network switch has a second communication network separate from said first

communication network for connecting outside of said first communication network at

least a switching module in said switch to at least one of the plurality of line modules" at

pages 1-2. Thus, it would have been obvious to one of ordinary skill in the art at the time

of the invention was made to combine Bracho with AAPA's teaching in order to

implement Bracho's publish/subscribe method within the prior art's switch instead of a

hub. Since all nodes in a network are connected to the switch, implement the

publish/subscribe with in the switch would make it easier and reduce overhead cost to

publish an event to other nodes, as well as subscribe to an event produced by other

nodes in the network.

As per claims 17, 33, and 41, Bracho teaches an apparatus and computer

readable medium for facilitating publish/subscribe communication within a network

switch (See Fig. 1), comprising:

- "a communication coordinator for receiving a subscription request across the

  second communication network within a line modules to receive publications

made to one or more event names" at Col. 4 line 64 to Col. 5 line 4, Col. 10 lines

1-34 and Fig. 5;

- "said subscription request comprising an event expression that includes a

  namespace that can be correlated to a plurality of different event names" at Col.

  10 line 65 to Col. 11 line 25 and Col. 15 lines 40-62;

- "accessing within a control module connected to said plurality of line modules a

  set of information pertaining to a publisher, said information comprising a

  particular event name to which said publisher publishes" at Col. 5 lines 5-25, Col.

  10 lines 1-34 and Fig. 5;

- "and resolving said event expression within said control module to determine

  whether said particular event name constitutes a match for said event

  expression" at Col. 5 lines 5-25 ,

- "thereby determining whether said subscription request is a request to receive

  one or more publications made to said particular event name" at Col. 2 lines 24-

  31.

Bracho teaches the method implemented in a hub, which is similar to a switch, but does

not explicitly teaches the structure of the network switch as recited in the preamble.

However, AAPA teaches a typical network switch "has at least a switch and plurality of

line modules for communicating data from a trunk lines through the switch to other

remote trunk lines across respective line module across a first communication network,

and said network switch has a second communication network separate from said first

communication network for connecting outside of said first communication network at

least a switching module in said switch to at least one of the plurality of line modules" at pages 1-2. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Bracho with AAPA's teaching in order to implement Bracho's publish/subscribe method within the prior art's switch instead of a hub. Since all nodes in a network are connected to the switch, implement the publish/subscribe with in the switch would make it easier and reduce overhead cost to publish an event to other nodes, as well as subscribe to an event produced by other nodes in the network.

As per claims 2, 18, 34, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 1, 17, 33 as discussed above, wherein "said event expression comprises one or more wildcard indicators" at Col. 9 lines 5-25.

As per claims 3, 19, 35, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 2, 18, 34 as discussed above, wherein "resolving said event expression comprises: performing pattern matching between said event expression and said particular event name" at Col. 11 lines 3-25.

As per claims 4, 20, 36, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 1, 17, 33 as discussed above, wherein "said namespace is a hierarchical namespace" at Col. 15 lines 40-62.

As per claims 5, 21, 37, Bracho and AAPA teach the method, an apparatus and computer readable medium of claims 4, 20, 36 as discussed above, wherein "said hierarchical namespace comprises one or more wildcard indicators in one or more hierarchical levels of said hierarchical namespace" at Col. 9 lines 1-55.

As per claims 6, 22, 38, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 1, 17, 33 as discussed above. Bracho further teaches:

- "said subscription request comprises a set of information pertaining to a subscriber" at Col. 8 lines 17-30;

- "and wherein said method further comprises: in response to a determination that said particular event name constitutes a match for said event expression, providing said set of information pertaining to said subscriber to a communication coordinator associated with said publisher" at Col. 8 lines 30-50.

- "said communication coordinator being one of a plurality of communication coordinators provided on each of said plurality of line modules within said switch" at Col. 8 lines 30-50.

As per claims 7, 23, 39, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 6, 22, 38 as discussed above. Bracho further teaches:

- "accessing a set of information pertaining to a second publisher, said set of information pertaining to said second publisher comprising a second particular event name to which said second publisher publishes" at Col. 6 lines 55-67;

- "resolving said event expression to determine whether said second particular event name constitutes a match for said event expression, thereby determining whether said subscription request is a request to receive one or more publications made to said second particular event name" at Col. 14 lines 50-67;

- "and in response to a determination that said second particular event name constitutes a match for said event expression, providing said set of information pertaining to said subscriber to a second communication coordinator associated with said second publisher" at Col. 14 lines 50-67.

As per claims 8, 24, 40, Bracho and AAPA teach the method, apparatus and computer readable medium of claims 7, 23, 39 as discussed above, wherein "said first particular event name and said second particular event name are different event names" at Col. 14 lines 50-67.

As per claims 10, 42, Bracho teaches the method, apparatus and computer readable medium of claims 9, 41 as discussed above, wherein "said event expression comprises one or more wildcard indicators" at Col. 9 lines 1-55.

As per claims 11, 43, Bracho teaches the method, apparatus and computer readable medium of claims 10, 42 as discussed above, wherein "resolving said event expression comprises: performing pattern matching between said event expression and said particular event name" at Col. 11 lines 17-25.

As per claims 12, 44, Bracho teaches the method, apparatus and computer readable medium of claims 9, 41 as discussed above, wherein "said event expression comprises a hierarchical namespace" at Col. 15 lines 40-62.

As per claims 13, 45, Bracho teaches the method, apparatus and computer readable medium of claims 12, 44 as discussed above, wherein "said hierarchical

namespace comprises one or more wildcard indicators in one or more hierarchical

levels of said hierarchical namespace" at Col. 15 lines 40-62 and Col. 9 lines 1-55.

As per claims 14, 46, Bracho teaches the method, apparatus and computer

readable medium of claims 9, 41 as discussed above, further comprising: "in response

to a determination that said particular event name constitutes a match for said event

expression, providing said set of information pertaining to said subscriber to a sender of

said publication announcement" at Col. 15 lines 8-39.

As per claims 15, 47, Bracho teaches the method, apparatus and computer

readable medium of claims 14, 46 as discussed above, further comprising:

- "receiving a second publication announcement indicating a desire to publish to a

  second particular event name" at Col. 7 lines 45-67;

- "accessing said set of information pertaining to said subscriber; resolving said

  event expression to determine whether said second particular event name

  constitutes a match for said event expression, thereby determining whether said

  subscriber should receive one or more publications made to said second

  particular event name" at Col. 10 lines 20-35 and Col. 11 lines 17-25;

- "and in response to a determination that said second particular event name

  constitutes a match for said event expression, providing said set of information

  pertaining to said subscriber to a sender of said second publication

  announcement" at Col. 8 lines 17-30.

As per claims 16, 48, Bracho teaches the method, apparatus and computer

readable medium of claims 15, 47 as discussed above, wherein "said first particular

event name and said second particular event name are different event names" at Col. 5

3lines 10-20.

As per claim 61, Bracho teaches the method of claim 1, wherein "each of said

plurality of line modules include a local table in which is stored information pertaining to

a particularly one of said plurality of line modules" at Col. 10 lines 1-19.

As per claim 62, Bracho teaches the method of claim 1, wherein

- "the control module includes a namespace server that includes a global table

  containing all local table information from each of said plurality of line modules" at

  Col. 10 lines 35-45,

- "the name server using information in the global table to coordinate

  communication through out the network switch" at Col. 11 lines 27-39.

Claims 63-70 recite similar limitations as in claims 1-62 and are therefore

rejected by the same reasons.

Response to Arguments

4.   Applicant's arguments filed July 11, 2006 have been fully considered but they are

not persuasive. The examiner respectfully traverses applicant's arguments.

A. 35 U.S.C §101 rejections

Regarding the 35 U.S.C 101 rejection to claims 17-24, applicant argued that the

claim 17 clearly sets forth the "apparatus", for example, "a communication coordinator

for receiving a subscription request is a device which must be capable of receiving a

subscription request". In response to this argument, the examiner respectfully submits

that all components of the claimed "apparatus" are or could be implemented using

software routine. The specification does not provide any hardware structure for the

"communication coordinator" to support applicant's argument that the communicator

coordinator is a hardware device. On the other hand, claim 33 provides an embodiment

where the communication coordinator is implemented using instructions, or software:

"instruction by a communication coordinator for causing one or more processor within

one of a plurality of line modules to receive subscription request."

Applicant further argued that "there is no requirement under 101 that a hardware

component be claimed. However, this argument contradicts applicant's own statement

that: "software has no ability to receive any signal or data. It can be used by hardware to

process or manipulate data, but in and of itself has no such ability". The claimed

"apparatus" comprises only software modules, lacking any hardware to make it an

actual apparatus. The claims need to recite at least one hardware component which

enables the functionality to be realized.

Regarding claims 33-48, applicant argued that "there is no legal requirement

that the claim be "tangibly embodied". On the contrary, the Interim Guidelines for

Examination of Patent Applications for Patent Subject Matter Eligibility provides:

"Functional descriptive material, per se, is not statutory. This is exemplified in In re

Warmerdam 31 USPQ2d 1754 where the rejection of a claim to a disembodied data

structure was affirmed. Thus **a claim to a data structure, per se, or other functional**

descriptive material, including computer programs, per se, is not patent eligible

subject matter.

Functional descriptive material claimed in combination with an appropriate computer readable medium to enable the functionality to be realized is patent eligible subject matter if it is capable of producing a useful, concrete and tangible result when used in the computer system. Compare Warmerdam to In re Lowry 32 USPQ2d 1031 where a memory with a data structure that increased computing efficiency was patentable.

The computer readable medium must be physical structure which provides the functional descriptive material in usable form to permit the functionality to be realized with the computer. A program product which does not explicitly include such a medium, a program per se, a signal or other type of transmission media that fails to include the hardware necessary to realize the functionality (e.g., a transmitter or a receiver), and a piece of paper with the functional descriptive material written on it are all examples of media which are not believed to enable the functionality to be realized with the computer.

In this case, claims 33-48 are directed to "computer readable medium", however, the claim languages indicate that the computer readable medium is not physical structure, but instead comprises only "instructions". For example, claim 33 states: "A computer readable medium comprising instruction" at line 1 and "said computer readable medium comprising: instructions by ....." at line 12. In order for claims 33-48 to be statutory, claims 33-48 should be amended to avoid the ambiguity discussed above. For example, claims 33 should read: "A computer readable medium storing instructions,

wherein the instructions when executed by one or more processor, cause ...., said instructions comprising:"

B. 35 U.S.C §103 Rejection.

Regarding the 35 U.S.C § 103 rejection to claims 1-24, 33-48 and 61-70, in response to applicant's argument that Bracho is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Brancho teaches all limitations of the claimed invention, except that Brancho's system is implemented in a **hub** instead of a **switch**. However, Hub and switch are two well known network devices and are often used interchangeably. Microsoft Computer Dictionary defines "Switching hub" as "A central device (switch) that connects separate communication lines in a network and routes messages and packets among the computers on the network. The switch functions as a hub, or PBX, for the network. See also hub".

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Bracho with AAPA's teaching in order to implement Bracho's publish/subscribe method within the prior art's switch instead of a hub. Since all nodes in a network are connected to the switch, implement the publish/subscribe with in the switch would make it easier and reduce overhead cost to publish an event to other nodes, as well as subscribe to an event produced by other nodes in the network.

Applicant argued that "there is no indication that the switches in the "hub" of

Bracho are controllable in anyway by the software as they are merely "dumb" switches"

and "do not control the switches based on the content to switch a separate

communication network". On the contrary, Brancho is not merely a "dumb" switch as

argued; instead, the hub performs the routing function based on content, as shown at

Col. 2 lines 5-15 reproduced below:

"The network is a "store and forward" network whose routing

is "content-based." In a content-based routing system,

information is routed based on the content of the information,

and not on the addresses of publishers or subscribers in the

system. In the described embodiment, information is distributed

to many subscribers in parallel."

In light of the foregoing arguments, the 35 U.S.C 101 and 103 rejections are

hereby sustained.

Conclusion

5.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (571) 272-4116. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Khanh B. Pham
Examiner
Art Unit 2166

September 21, 2006